

Appl. No. : Unknown
Filed : Herewith

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

WHAT IS CLAIMED:

1. (Currently amended) A corneal topographer, comprising:
an illumination projection subsystem configured to project a series of preselected different stationary patterns of one or more slits of light in ordered succession onto the surface of the cornea:
an image capture subsystem configured to capture ~~a still~~an image of each projected pattern; and,
an image processing subsystem to convert the ~~still~~ images into topographical information of the cornea.
2. (Original) A corneal topographer according to claim 1, wherein the illumination projection subsystem makes use of collimated LEDs, masked and focussed onto the eye.
3. (Original) A corneal topographer according to claim 2, wherein there are up to fort-eight LEDs producing the same number of slits.
4. (Currently amended) A corneal topographer according to claim 1, ~~2 or 3~~, wherein the slits are projected in up to twenty different patterns.
5. (Currently amended) A corneal topographer according to claim ~~2 or 3~~, wherein the LEDs are housed together in sets with a common focussing arrangement.
6. (Currently amended) A corneal topographer according to anyone of claims 1 ~~to 5~~, wherein a CCD. video camera is used under the control of a computer to capture the ~~still~~ images.
7. (Original) A corneal topographer according to claim 6, wherein the computer also controls a frame grabber to capture a still image every time a new combination of slits is projected onto the cornea.

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8. (Currently amended) A corneal topographer ~~according to any preceding claim~~having illumination, image capture and image processing subsystems, wherein analysis involves registration of the whole image sequence to compensate for saccadic or other eye movements that occur in the time interval between capture of successive images;

next, image processing determines the two edges of the slits as they are shown on the image;

the edges are then converted into mathematical curves; and

the curves are then used to determine the external shape of the cornea, the inside surface of the cornea, and all the local shape variations in these surfaces.

9. (Original) A corneal topographer according to claim 8, wherein the thickness of the cornea is also calculated.

10. (Original) A corneal topographer according to claim 8, wherein reflections off other surfaces are used to calculate the volume of the anterior chamber and distances to the lens.

11. (Currently amended) A corneal topographer according to ~~any one of claims 1 to 10, further including means to~~comprising a display configured to display the topography data.

12. (Currently amended) A method ~~for~~of corneal topography, comprising ~~the following steps:~~

projecting a series of preselected different stationary patterns of one or more slits of light in ordered succession onto the surface of the cornea;

capturing ~~a still~~an image of each projected pattern: and;

converting the ~~still~~ images into topographical information of the cornea.

13. (Original) A method according to claim 12, wherein analysis involves registration of the whole image sequence to compensate for saccadic or other eye movements that occur in the time interval between capture of successive images.

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14. (Currently amended) A method according to claim 12~~or 13~~, wherein image processing determines the two edges of the slits as they are shown on the image.

15. (Original) A method according to claim 14, wherein the edges are converted into mathematical curves.

16. (Original) A method according to claim 15, wherein the curves are used to determine the external shape of the cornea, the inside surface of the cornea, and all the local shape variations in these surfaces.

17. (Original) A method according to claim 16, wherein the thickness of the cornea is also calculated.

18. (Currently amended) A method according to claim 16~~or 17~~, wherein reflections off other surfaces are used to calculate the volume of the anterior chamber and distances to the lens.

19. (Currently amended) A method according to ~~any one of claims 12 to 18~~, further including the step of displaying the topography data.

20. Cancelled.

21. Cancelled.

22. (New) A corneal topographer, comprising:

means for projecting a series of preselected different stationary patterns of one or more slits of light in ordered succession onto the surface of the cornea;

means for capturing an image of each projected pattern; and

means for converting the images into topographical information of the cornea.